FARM INDEX

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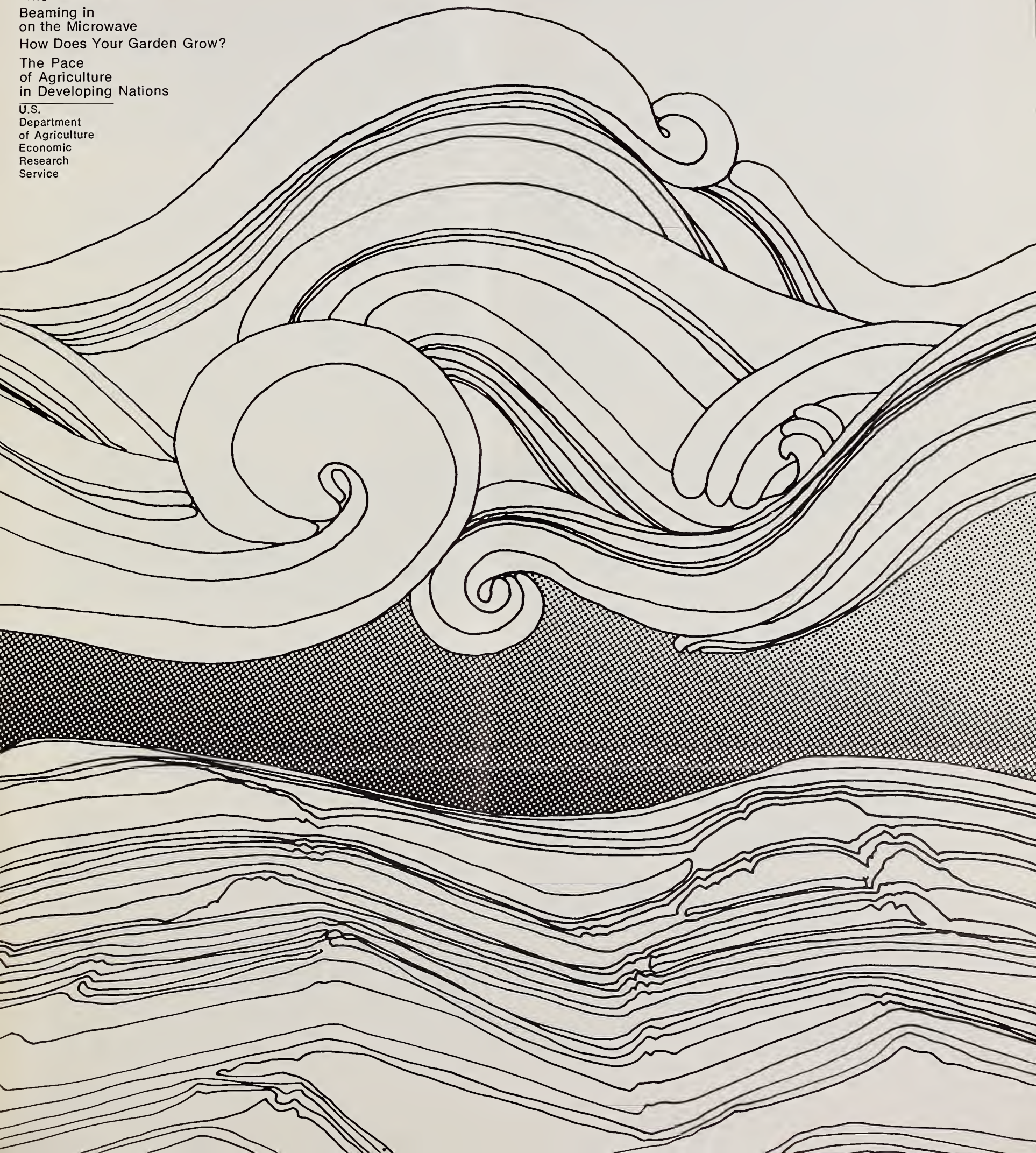


THE AGRICULTURAL OUTLOOK

Reflecting the general economic trend of recent months, consumers have cut back their spending on most durable goods—as economists call autos, TVs, refrigerators, and the like.

But sales of soft goods, or nondurables—such as foods, beverages, and clothing—don't seem to be hurting much. First-quarter spending on these (the first two, in particular) rose $6½ billion and does not appear to have slackened much in more recent weeks.

Consumer buying will probably continue to rise as after-tax incomes advance further and prices level off. But "big-ticket" purchases are likely to be postponed until the job picture stabilizes. At mid-year's approach, the unemployment rate was at a 5-year high of 4.8 percent.

On the farmer's side of the fence. The expected rise of $2 billion in cash receipts this year should offset the prospectively bigger outlays for inputs. Realized net income would thus match that in 1969—$16 billion—the third highest on record.

Who's living on farms? About 10,307,000 people were living on farms last year. Our farm population—about 5 percent of our whole population—has declined about one-third since 1960. Yearly rate of decline averaged 3.8 percent among white farm residents, 10.5 percent among Negro and other races.

GRANARY GLEANINGS

At final signup, feed grain producers said they were diverting 39½ million acres from feed grains this year. Actual diversion will probably be around 37½ million acres.

Feed grain demand strong. Usage in 1969/70 is expected to be 5 percent above last season and to slightly exceed last fall's crop of 174 million tons. Reason:

Price relationships favor liberal feeding.

Hog feeding seems to be on the upswing.

Exports in the first half of the marketing season that ends Sept. 30 were sharply above year-earlier exports that sagged under dock-strike pressures. But competition from the Southern Hemisphere—especially Argentina—is intensifying. So, total 1969/70 feed grain shipments aren't likely to go much, if any, above the 18.4 million tons of 1968/69.

The Oats Buildup. Carryover of oats on July 1 is estimated at around 475 million bushels—biggest ever. Last year's harvest was 10 percent above the 1963-67 average . . . demand didn't match it.

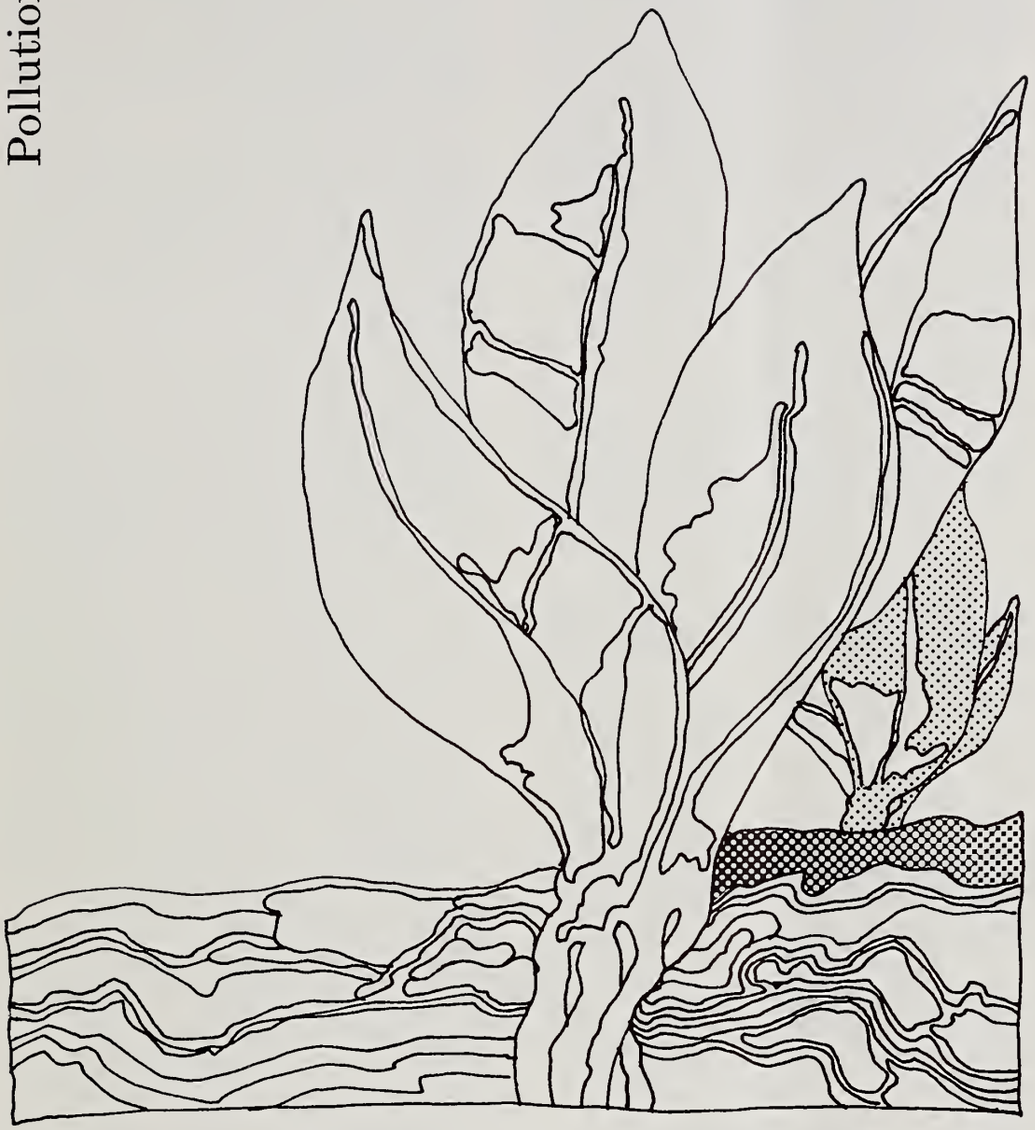
Most of the stock buildup is in 5 Northern States (the Dakotas, Minnesota, Nebraska, and Montana). Though off the beaten path to major livestock areas, these States pushed their oats production to nearly half a billion bushels, a third over the 1962-66 average.

More they eat, more they want. High-protein feed consumption by livestock is expected to reach about 19.6 million tons this year—5 percent above 1968/69. October-April prices were about 10 percent higher than a year earlier. Current strong demand coupled with shortages of some of the protein feeds will probably maintain generally higher prices this year.

Corn usage at alltime high. Both at home and abroad, use of U.S. corn in the first half of this marketing season was well above a year earlier—reducing stocks to a little below 3.0 billion bushels by April 1. Domestic usage is expected to continue heavy in April-September, and 1969/70 total use to set a record of around 4.7 billion bushels.

Wheat supplies abundant. For 1970/71 they may be slightly above this marketing year's 2.3 billion bushels. Way things looked in early June: the 1970 wheat crop will be around 1.4 billion bushels, down 70 million bushels from last year. Stocks, however, have piled up highest since 1964, though they're well below surpluses of a decade ago. The June 30 level is estimated at about 900 million bushels.

Pollution/Pesticides/Farmers



Question for farmers and all other Americans: How much enhancement of environment would they ask for if it were free, and how much are they willing to pay for?

The smog over Los Angeles is probably not of great personal concern to the average southern farmer. Neither is the multicolored smoke belching from Detroit's factories.

What is more likely to concern him is brackish water in his well . . . malodorous fumes from the town dump 3 miles up the road . . . pollution of his favorite fishing stream in the Smokies.

He is also concerned about headlines that focus on agriculture's contribution to pollution.

And most of all—especially if he makes his living off cotton, peanuts, or tobacco—he is worried about restrictions on the use of pesticides, what part they play in the environmental scene, and where he stands in the picture.

Pesticides in the environment are, of course, only one of many pollutants related to agriculture. Eight others now under national review are sediment, animal waste, plant nutrients, waste from industrial processing of raw agricultural products, forest and crop residues, inorganic salts and minerals, and air pollution's impact on agriculture.

In the past, public attention has consistently been directed more to pesticides than the other problems. And it will probably continue to be. At least until society and the agencies that serve it are satisfied that pest control is being accomplished with minimal hazards to man and his natural environment.

More than half of all pesticides used in the United States are used by farmers.

They spent about $561 million for 503 million pounds of pesticides in 1966, including 150 million of sulfur and petroleum. (These figures exclude use for farmyards and gardens.)

Since then, manufacturers' sales indicate that farm use of pesticides has risen about 10 to 15 percent a year. Herbicides account for most of the increase.

Over 90 percent of all these pesticides are used to protect crops, rather than livestock.

Of all the 1966 crop, pasture, and rangeland, 14 percent got treated. Average cost for pesticides was $3.98 per acre, but it varied from 45 cents for certain grains to $54.80 for apples.

Corn and cotton together absorbed about 45 percent of farmers' outlay for crop pesticides (corn, $135 million; and cotton, $94 million.)

Cotton, tobacco, peanuts, fruits, and vegetables all require intensive use of pesticides. Hence the southern farmer's concern about the relative benefits and hazards of pesticides he has long used.

From his point of view, the most important of these pesticides are the organochlorine insecticide group (loosely referred to as persistent pesticides).

The main organochlorines are aldrin, DDT, and dieldrin—and to a lesser extent, benzene hexachloride, heptachlor, lindane, Strobane, TDE, and toxaphene.

Their broad spectrum insecticidal properties, long residual life, and relative safety in handling make them desirable for many control purposes.

But some of them have adverse

characteristics. They decompose slowly under most conditions and their residues can be carried long distances from the place of application.

These residues stay active in soil and water that are the habitats of fish and wildlife. Also, they have a tendency to accumulate in the fatty tissues of warm-blooded animals, man included (although no harmful effect on humans has been detected despite repeated and prolonged tests by public health authorities).

While some insects have developed increased resistance to these persistent pesticides, they still comprised 79 percent of all insecticides used nationwide on tobacco in 1966, 77 percent on cotton, 69 percent on corn, and 59 percent on peanuts.

The intensity and distribution of the organochlorines use varied greatly. For example, an average of 10 pounds an acre was applied on 5 million acres of cotton. In contrast, 1 pound an acre was applied on 16 million acres of corn. Peanuts and tobacco were about midrange, at 6 and 5 pounds, respectively.

Altogether, farmers in the four southern regions (Appalachian, Southeast, Delta States, and Southern Plains) accounted for 70 percent of the organochlorines used nationwide and 40 percent of the acreage treated.

The Southeast led in usage: 32 percent of total ingredients and 14 percent of total acreage that was treated.

Major substitutes for these organochlorines are organophosphorus and carbamate insecticides. Among the most widely used of many compounds are carbaryl, parathion, and methyl parathion.

The substitutes can control most pests, but are not effective against a few insects—notably some that attack corn and cotton. And though not persistent, some of the organophosphorus in-

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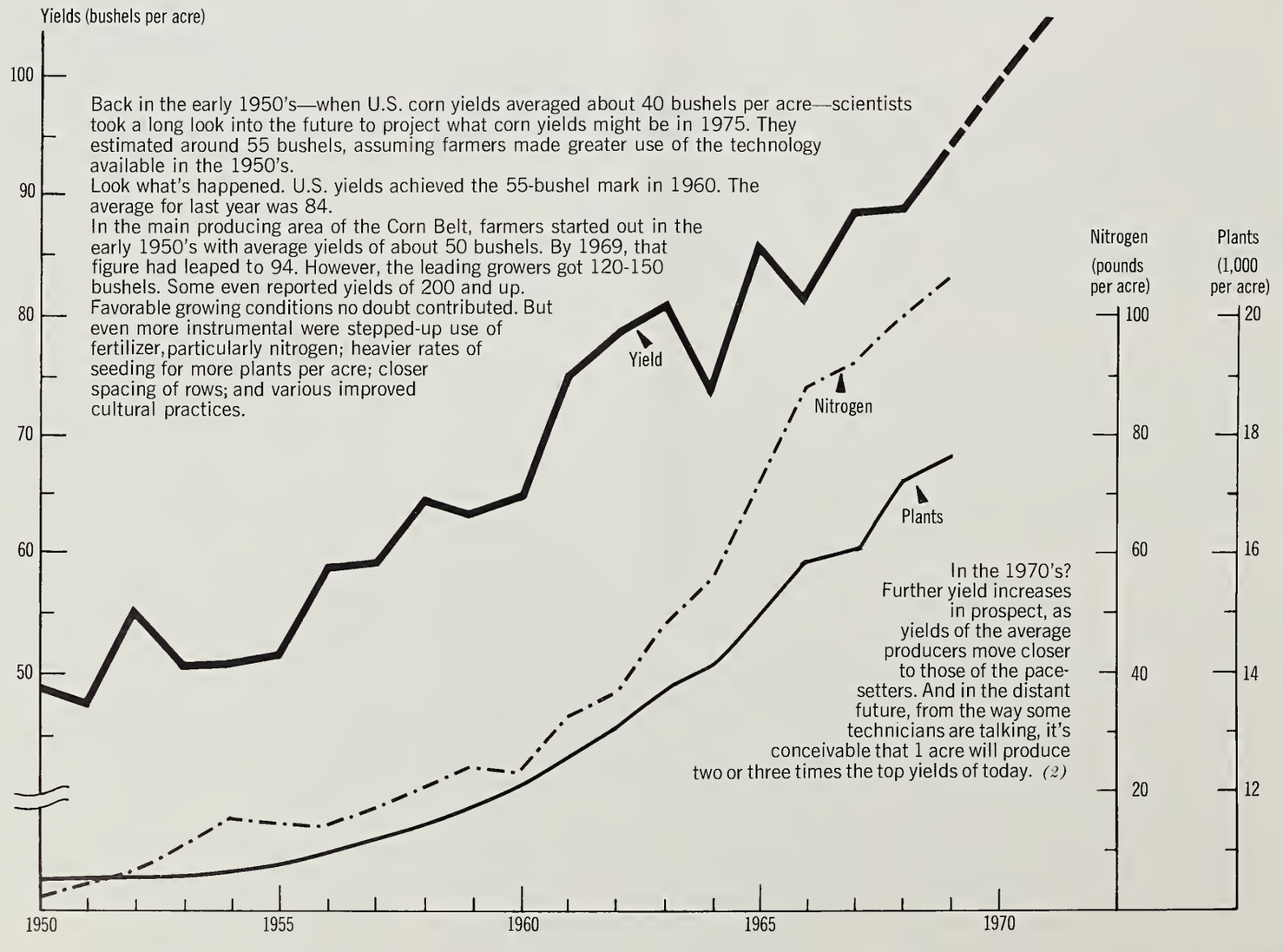


secticides are likely to be much less safe for those who handle them, and their potentially harmful effects on man and wildlife tend to be acute rather than chronic.

They also have a greater tendency to suppress insect parasites and predators. This characteristic, coupled with their short residual life, may necessitate more frequent use of insecticides in greater volume.

With the means and knowledge now in hand and the continuing need to protect crops, control of farm pesticide use can at best be a relatively small step toward creation of a Utopian environment. But restricting certain pesticides on a selective, scientific basis can probably help stem the further deterioration of our present un-ideal environment.

How much would such potential improvement cost southern farmers—who rely so heavily on use of "persistent" pesticides?

A recent ERS study estimates that restrictions on the use of DDT and its persistent family relatives on cotton, peanuts, and tobacco—the South's three major crops—would have cost farmers a total of $19.4 million in 1966. Costs for that year represent the maximum in the foreseeable future.

But because of wider spread insect resistance and new, more effective chemicals, usage of organochlorines on the South's 3 major crops wasn't estimated as heavy in 1969 as in 1966.

Thus, if the use of organochlorines on these crops had been restricted in 1969, the costs are estimated somewhat lower: $17 million. This would have been about six-tenths (0.6) percent of the farm value of these crops.

For southern farmers, like all other Americans, the question is the same: How much enhancement of environment would they ask for—if it were free? And how much are they willing to pay for? *(1)*

U. S. Farmers Spend Billions On Crop Insurance To Hedge Risks

American farmers are buying crop insurance as never before—about $4.5 billion worth in 1969. Ten years ago, the figure was less than $3 billion.

Does this mean farming is becoming more risky?

That depends on the kind of risks we're talking about. Certain natural hazards—posed by disease, insect pests, and weeds—have actually been minimized by improvements in technology and cultural practices.

Financial risks, however, are generally conceded to be greater than they were a decade or two ago.

Just as technology has reduced certain natural hazards, it has also resulted in higher per acre yields—and, consequently, in higher crop values. Production costs per acre, meantime, have gone up considerably. Farmers today thus have many more dollars at stake than in 1960.

The most popular and oldest form of insurance protection for crops in the growing stages is the crop-hail policy.

Available since the late 1800's, hail insurance coverage has grown to around $3.5 billion. It is bought by over a half-million farm operators and landlords, particularly to insure tobacco in the Appalachian Region; corn and soybeans in the Corn Belt; and wheat, barley, and grain sorghum in the Great Plains.

Total indemnities paid to claimants average a little more than 60 percent of the premiums, which have totaled over $100 million annually since 1962.

Most hail insurance contracts are sold by commercial mutual and stock companies.

All-risk insurance, the other principal kind of coverage, offers protection against nearly all losses due to "unavoidable causes" including flood, frost, drought, insects, and diseases.

This insurance, like crop-hail protection, was first offered around the turn of the century by private companies. But their ventures were not very successful because the underwriters' loss ratio (indemnities paid out as percent of premiums received) was relatively high.

Today it is the Federal Crop Insurance Corporation that writes virtually all of the all-risk policies. FCIC each year insures about 300,000 farms at a total protection of approximately $900 million. Roughly 80 percent is for wheat, tobacco, corn, cotton, and soybeans.

Commercial crop-hail companies have recently reentered the field of all-risk insurance, which they call "multiple peril" crop insurance. It is available in a dozen States.

A few private crop-hail companies also write weather-peril crop insurance. This protects against most weather hazards, though it is not as inclusive as all-risk insurance. In the past, the all-risk and weather-peril coverages offered by private companies have been limited mainly to corn and soybeans in the Corn Belt. Now they are gradually being extended to other crops and areas, such as tobacco in the Southeast and wheat in the Northwest.

Some growers do not buy crop insurance because their production risks are small. But even where the risks are high, crop farmers may employ other risk strategies to replace or supplement insurance.

For example, some build up financial reserves in good years or they may reduce their debts in order to increase their borrowing capacity in times of crop loss. Others may spread their investment risks by raising livestock in addition to crops.

Federal price support programs, too, have afforded a measure of "free" insurance in the sense that some support pay-

ments are based on projected yields rather than actual yields.

Accumulating grain reserves is still another way to hedge bad crop years, particularly in the Great Plains.

And FHA emergency loans can also be of help. To be eligible, however, the borrower's farm operation must either be in a county designated as a disaster area, or the farmer must prove he has suffered a disaster and can't get regular credit. *(3)*

CROP-HAIL INSURANCE IS A GROWING CONCERN

Period	Insurance [1]	Premiums	Indemnities paid	Loss ratio [2]
	Millions of dollars			Percent
1935-39	249	9.8	5.6	57
1940-44	497	21.3	13.5	64
1945-49	1,128	50.4	24.9	49
1950-54	1,538	60.3	38.4	64
1955-59	2,300	90.6	55.1	61
1960-64	2,662	106.5	70.5	66
1965	3,096	117.0	73.9	63
1966	3,173	115.0	56.9	49
1967	3,488	124.6	88.2	71
1968	3,535	128.4	69.2	54
1969 [3]	3,550	126.8	80.4	63

[1] Issued by mutual and stock insurance companies and State hail departments. [2] Losses as a percentage of premiums. [3] Preliminary.

Uphill Trend in Poultry Meat Output To Continue in the '70s

Further advances in demand, rising output and gains in per-capita consumption. This is how the 1970's will shape up for the U.S. poultry meat industry, according to a recent study by the Economic Research Service.

Projecting industry trends through 1980, ERS calculates that broiler numbers by that year will have expanded by around 1 billion birds from the 1969 total of around 2.75 billion.

Marketing weights per bird, on the other hand, may not change much from last year when they averaged about 3½ pounds liveweight. A big reason is that larger volumes will be marketed through chicken carryout shops. These establishments, which now buy 12 to 15 percent of total broiler output, require a ready-to-cook weight of 2½ to 2¾ pounds; many producers will be holding weights to this range.

If average weights are maintained near current levels, output of ready-to-cook broiler meat may total around 10 billion pounds by 1980, up 2.5 billion from 1969.

Output of other chicken meat will rise slowly, although its share of total meat production—now 10 percent—will continue to decline in relative importance.

Turkey numbers within 10 years may be up 45 to 50 percent from the 106 million of 1969. This would push meat output to around 2.3 to 2.5 billion pounds, ready-to-cook basis, or 0.8 billion above the 1.7 billion in 1969.

Overall demand for poultry meat will wax stronger in the 1970's, reflecting population growth, rising after-tax incomes, and the relatively higher prices for red meats than poultry.

Per capita consumption of all poultry meat combined, is forecast 20 to 25 percent above the 47-pound average of last year. *(4)*

Hooked on Catfish, Many Farmers In the Delta Disregard the Costs

Angling for better incomes, more and more farmers in the South are using catfish as a lure.

Even though it takes a lot of money to start a catfish farm big enough to net worthwhile profits, the industry continues to expand at a rapid rate.

Arkansas and Mississippi (especially the Delta counties) are good examples of areas caught up in the catfish boom.

Back in 1963, the acreage of reservoirs stocked with brood catfish and fingerlings in these two States totaled less than 1,600. By 1967, it had risen to 9,250. And by 1969, catfish had moved into more than 29,000 acres of reservoir space.

During this period of development, the Economic Research Service has cooperated with the University of Arkansas in trying to keep track of the kinds of resources and amounts of capital going into various phases of the catfish industry and some of the practices used in growing, harvesting, marketing, and processing the domesticated "channel cat."

The researchers recently took a look at a selected group of 27 eastern Arkansas farms where 96 catfish reservoirs of all sizes were built in 1968 and 1969.

On the average, the farmers who initiated or expanded their fish production facilities committed $256 per acre for reservoir construction and related developments.

The costliest part of creating new reservoirs in 1968 and 1969 was the average $157 bill per acre for levee construction by custom operators.

Other sizable items were an $83 average outlay per acre for complete well units, and $52 per acre for clearing and smoothing land when it was wooded and had a lot of stumps. *(5)*

Today's older farmer wants to assure a successful continuity of his farm after he's gone. Legal twists and turns of inheritance, though complicated, offer many choices.

It usually takes a lot of coaxing to get a man to sit down with a lawyer and make out his will.

And a farm owner-operator is no different. In fact, because his farm is often both his home and place of business, the typical farmer may feel that planning the distribution of his estate is doubly complicated.

When he does get together with his lawyer about it, however, the farm owner-operator usually has certain estate planning goals in mind. In order of importance, they are:

—To pass on his farm intact to his heir or heirs as a going concern.

—To take care of the son or son-in-law who has been running the farm and assure his continued operation of it.

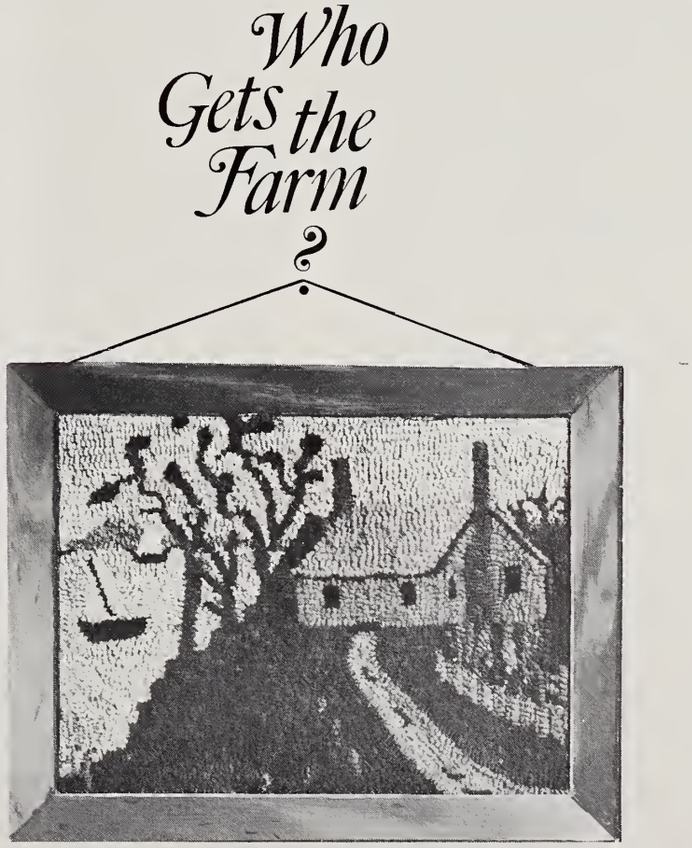
—To provide his wife with an adequate income for the rest of her life.

—To distribute what's left of his estate equitably among his other heirs.

—To cut both income and inheritance taxes to the bone.

—To keep all other costs low.

—To keep courts, administrators, executors, lawyers, and professional managers out of the operation of the farm during and



following transfer of ownership.

Some of these objectives are compatible with one another. Others are not. Keeping the farm in the family, for example, could keep taxes and transfer costs lower than they might be under other arrangements.

But assuring adequate support for the original farm operator's wife may mean sacrificing another goal: keeping the farm in the family. And it may result in increased taxes and other costs.

Lifetime gifts of farm property to the children appear to be one of the best ways to assure fair treatment and to reduce settlement costs and taxes.

But such a planned program of giving may result in breaking up the farm and could leave the parents without a comfortable retirement income or adequate support to the surviving wife.

Whatever the objectives, a farmer should tailor his estate planning to the specific needs of his estate and his family. The number of his heirs, their ages, education, and individual needs are important factors. The size and type of his farm and whether or not one son wants to operate it should also be considered.

Some farms have a "going-concern" value that could be lost if the operation were dismantled.

A pure-bred herd or flock, for example, may be worth much more on a particular farm operated under an established name than it would if the operation were broken up through an auction-dispersal sale.

To a lesser extent this also applies to seed farms and other specialty farm enterprises like fruits and vegetables and feedlots.

Farms with heavy investments in specialized, complicated, and expensive machinery can seldom be sold for the cost of the machines minus actual depreciation value.

Judging by a study of large farm estates in Iowa, here are some of the methods the farmer may use to attain specific estate planning goals:

Willing the farm intact. An outright transfer of the farm to a single beneficiary in a will—to a son, son-in-law, or someone who is not a member of the family—may be appropriate under certain circumstances.

Incorporation. This helps assure transfer of the farm operation intact from father to son or other heir. It also allows the father to maintain effective control while sharing ownership during his lifetime.

Partnerships. Farm partnerships are typically family ones between father and son or father and son-in-law. With proper planning, partnerships offer good opportunities for maintaining the farm operation intact in the hands of one partner when the other dies.

Trust. The farm may be placed in a trust either during the lifetime of the owner, or the owner can set up a trust in his will to be effective upon his death.

Lifetime trusts give the father a chance to observe how his son (or other designated trustee) manages, and still leaves the estate open to change.

Purchase and leasing agreements. The son buys or leases the farm with a contract to support his parents the rest of their lives. If the son is leasing, the parents in turn agree to will him the farm.

Or the son pays the father less than market value for the farm, with the father retaining the right to repossess it should some specified event occur.

Another sales arrangement provides the father with the option to repurchase the farm on reasonable terms if the son decides to sell.

Still another sales arrangement allows the operating son to pay for the farm at a fluctuating rate based on the current market value of the principal product of the farm.

Joint tenancy. Typical joint tenants on farms are husband (the farm operator) and wife. Unlike the situation with some two-party co-ownerships, when one joint tenant owner of a piece of property dies the entire property descends to the survivor. (In Iowa, in 1964, joint tenancy arrangements accounted for 84 percent of the land held in co-ownerships.)

Outright sale. If a farmer wants to, he can simply sell his farm and retire on the proceeds. If he has an heir but wants to cut his inheritance taxes, he can pass on the farm partly as a sale and partly as a gift. *(6)*

Figuring Cost of a Clean Stream Is a Journey Into the Unknown

By now most people are aware of the undesirable effects of water pollution.

But not so widely understood, perhaps, are some of the possible economic repercussions of water quality management.

Just how much does it cost to clean up a polluted stream? And are the benefits always worth it?

The Economic Research Service and Pennsylvania State University asked these questions as they examined the case of polluted Codorus Creek in York County, Pennsylvania.

The major cause of pollution over a 10-mile stretch of the creek is a pulp and paper manufacturing plant which is also the major contributor to the local economy.

Normal Codorus Creek streamflow is 2.6 million gallons of water a day. To this the plant

adds 16 million gallons of liquid waste on which it currently spends about twice what the average pulp plant spends on waste treatment.

For every ton of paper the Codorus Creek plant produces, it spends about $3—or some $625,000 a year—to remove 85 to 90 percent of the solid matter and up to 50 percent of water discoloration in its waste.

However, under the State's "Clean Streams Law," the Sanitary Board may designate uses to be protected in specific streams. Some of the water uses to be protected in Codorus Creek include fishlife preservation, water supply, fishing and boating, power generation, and waste assimilation.

To bring the water up to the standards necessary to protect these uses would increase current treatment costs by $2 million—more than 10 times what the average pulp plant pays.

Adding this $2 million to the Codorus Creek paper plant's annual expenses would seriously jeopardize its competitive position. And the entire economy of the area would be likely to suffer.

Most people agree that minimum health and safety standards are essential. But water quality cost increases rapidly as higher standards are imposed and its ultimate influence on the economic welfare of the community cannot be ignored. *(9)*

Today's Youngsters Hold Key To Population Growth Projection

Size of population is one of the main keys to future levels of economic activity. And it also is one of the most tricky projections the economic forecaster has to deal with.

Projecting population at the end of this century involves decisions to be made about the number and spacing of children. These decisions will be made by those who are now teen-agers, children themselves, or are yet unborn.

Uncertainty about these decisions is reflected in the official population projections of the U.S. Bureau of Census for the next 3 decades.

The Census "C" projection calls for a population growth of 100 million by the year 2000; the "D" projection calls for an increase of only 80 million.

Looking at the low U.S. birthrate of the last several years, some authorities now are inclined to think an estimate of 100 million more people in the United States by the turn of the next century is too high.

But the history of the last 30 years has shown that people are capable of advancing or deferring childbearing according to the psychology of the times.

Because of the low birthrate in the 1930's many population specialists at that time predicted a population decline by 1960. Instead, the population grew more in the last 30 years than ever before.

Today's "C" and "D" projections of the Census Bureau both assume that the average woman now entering her childbearing years will have fewer children than her counterpart of 20 years ago.

Both projections estimate that every 1,000 women now 35 to 39 years old will average a total of at least 3,350 children by the time they are through bearing children.

The "C" projection—which forecasts the 100 million growth—is based on a completed birth cycle of 2,775 children per 1,000 women now aged 15 to 19. This is a drop of one-sixth from the projection of women 20 years older.

The "D" projection—forecasting growth of 80 million—is based on the assumption that women now aged 15 to 19 will have no more than 2,450 per 1,000 by the time they are through bearing children. This is one-fourth less than the present birth level.

Is this low figure possible? Yes, it is. In fact, the figure was even lower in this country's recent past. In the 1950's fewer than 2,450 children had been born per 1,000 women then nearing the end of their childbearing years.

Some 20 percent of these women were childless and another 20 percent had only one child. But many medical advances have been made since then.

Today only 7 percent of married women remain childless and about 11 percent have one child. Health conditions previously holding down the birthrate are no longer a major factor.

Thus, a year 2000 population growth limited to 80 million more people than we have now is possible only if people reduce their ideal family size from today's ideal of 5 (mother and father and 3 children) to a figure much closer to 4.

But since World War II, opinion polls have shown this ideal to be very stable.

From 1947 through 1968 these polls have consistently turned up the same results.

And by and large, women now completing their childbearing years have adhered to this ideal by producing an average number of about three children.

As more and more people become concerned about population growth, however, this opinion so seemingly well entrenched today, could change. And the birthrate could drop along with the change.

Yet even if U.S. population growth could be limited to the lower 80 million figure by the year 2000, that rate would push the increase up to 100 million by the year 2007 anyway.

So the important question is not whether total population will grow by 80 million or 100 million by year 2000, but what's to be

done about housing, educating, and providing jobs and a desirable environment for these new citizens when they arrive. *(8)*

Simply Mapping Out Soil Types Helps Determine Value of Land

Some soils are wet. Some are rocky. Some are sandy and dry. Some are clayey and hard to work.

Some soils are good for growing crops. Others are not. Some have good qualities for bearing roads, houses, and other structures. Others do not.

Soil scientists survey the soil in a given area for these factors and record their results on soil maps.

These maps have long been used by farmers and ranchers to help get the most productivity from their land.

Recently, however, more and more nonfarmers—community planners, engineers, sanitary engineers, woodland managers, local officials, developers and others—are also finding soil maps useful for many different purposes.

Soil maps tell such people which soils are favorable or unfavorable for roads, pipelines, private dwellings, septic tanks, schools, parks, golf courses, stores and shopping centers, and other urban facilities.

For ease in interpreting these maps, all soils are grouped in three classes: those with *slight limitations* that can easily be overcome; those with *moderate limitations* that require special effort to overcome; and those with *severe limitations* that are difficult and costly to overcome.

Realtors, credit agencies, land appraisers, and tax assessors find soil maps helpful in determining the value of land.

Soil scientists and foresters use them to determine the rate of growth of different species of trees on different kinds of soil and thus can estimate the wood crops that can be produced.

As more attention is given to planning land use, more and better information is needed about the soil and what it can be used for. Soil surveys and soil maps provide this kind of information. *(7)*

Machines, Fewer Farms Causing Shrinkage in Farm Labor Force

Last year's hired farm working force was down close to 12 percent from 1968 as the rapid growth of farm mechanization and the steady downtrend in farm numbers continued.

About 2.6 million people worked on farms and drew salaries or cash wages last year.

Between 1964-66 and 1967-69, the number of hired farmworkers dropped off an average of 7.5 percent a year.

Who are America's hired farmworkers? Only 21 percent gave farmwork as their chief occupation. And 60 percent (mainly housewives and students) were not even in the labor force most of the year.

Seventy-four percent of all hired farmworkers lived off the farm in 1969, although some lived on farms some part of the year.

Most (77 percent) were white and most (74 percent) were men.

Although 35 percent were young people between the ages of 14 and 17, the median age of all hired farmworkers in 1969 was 23 years.

About 10 percent were migratory workers who had farm jobs outside their home counties. This was about the same percentage as in 1968.

The largest proportion of farmworkers (42 percent) lived in the South; 26 percent in the West; 23 percent in the North Central States; and 9 percent in the Northeast Region.

How long did they work? How much did they earn? The average hired farmhand earned about $10.75 a day in cash wages working on farms in 1969, and $838 for an average of 78 days of farmwork. This did not include food, housing, or fringe benefits.

The 1.5 million persons who worked on farms for more than 25 days earned an average of $1,406 for 131 days of farmwork. Many of these people, too, were not in the work force most of the year or earned most of their income off the farm.

Some 0.3 million year-round farmworkers average 319 days of work and earned $3,485, while 1.0 million people who worked only in peak seasons averaged 59 days and earned $577 for their efforts.

Casual workers who were employed on farms only 25 days or less—a total of 1.1 million men, women, and children over 14 years of age—worked an average of 9 days and earned $81. Male casual workers averaged $9.35 a day; females, $7.50. Casual workers who were also classed as migratory earned an average of $8.65 a day.

White hired farmworkers averaged 132 workdays at $11.35 a day for a total of $1,496 farm earnings in cash wages.

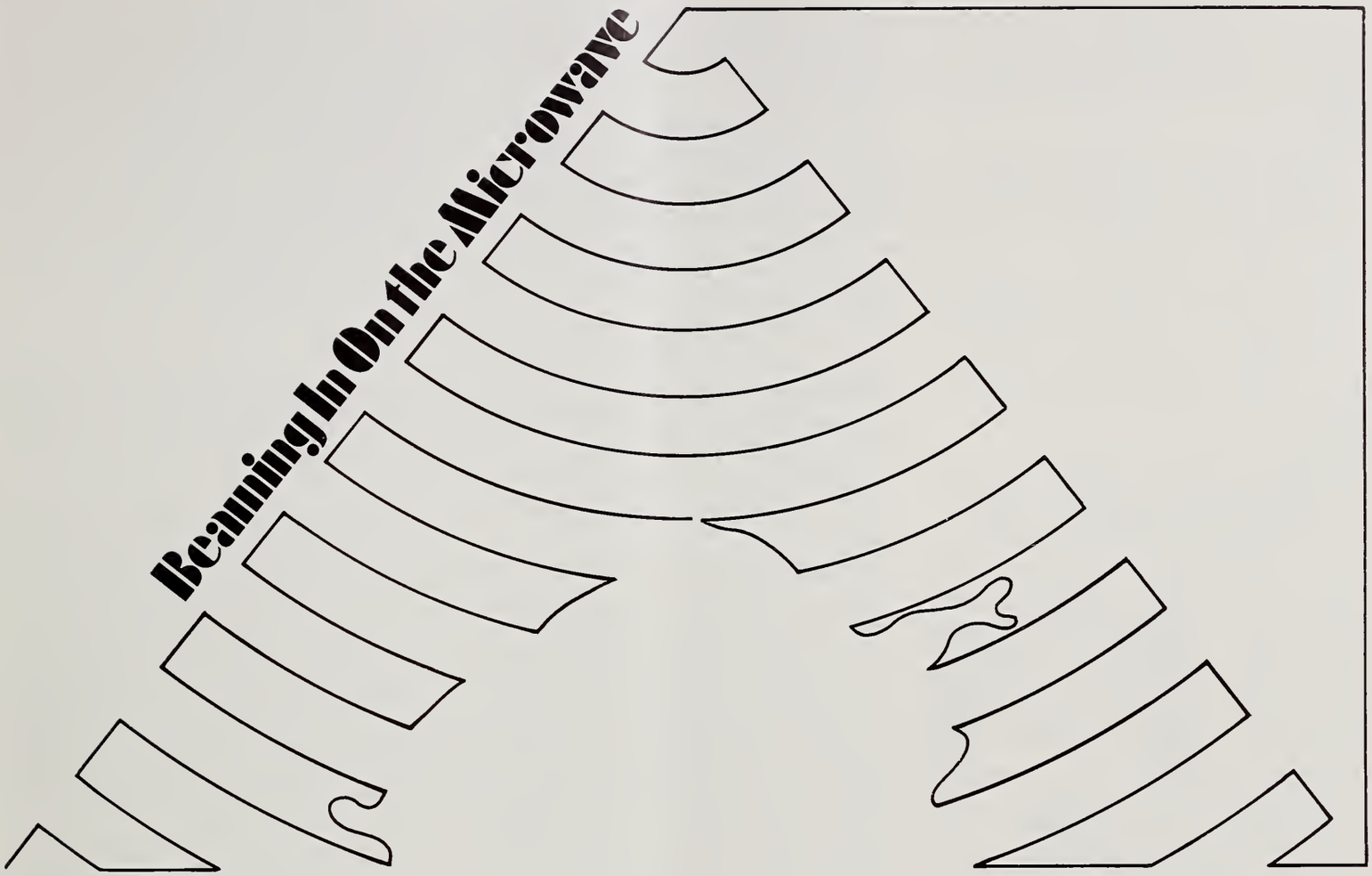
Negroes and members of other races averaged 126 days of farm work at $8.80 a day for earnings of $1,110.

U.S. migratory workers working outside their home counties averaged 113 days at $11.35, earning a total of $1,293.

Workers in the West received the highest daily wage, $13.95; those in the South received the lowest, $9.10.

Regular and year-round farmworkers, who made up about one-fifth (19 percent) of the 1969 hired farmwork force, did about two-thirds (66 percent) of the total man-days of farm wagework. *(10)*

Beaming In On the Microwave



Microwave ovens are performing their feats of speed in a growing number of kitchens. The advent of this speed demon may cause shifts in food processing and marketing.

Evidence of the microwave miracle is a potato baked in less time than it takes to eat it; a batch of bread cooked up in 10 minutes flat; or a 5-pound roast done to a turn in half an hour, while the wine chills.

Microwave ovens were in the experimental stage in the 1960's, but were little more than a conversation piece to most people.

Now, however, they are being used by a growing number of commercial operations. They may soon become standard equipment in restaurants, food processing plants, vending machines, and even family kitchens.

Microwave ovens operate with high frequency waves of electromagnetic energy which are converted into heat by friction as they penetrate whatever is being cooked. The friction comes about as the molecules within the food rub against each other.

These new ovens are efficient because no energy is wasted in heating the walls of the unit. Heating starts immediately throughout the food, unlike conventional ovens where the heat slowly penetrates from outside to inside.

About 100,000 microwave ovens are now in use in this country. Several airlines have been trying them, on an experimental basis, in their inflight kitchens.

Airlines have to provide a meal in less than a minute. Traditionally, all these meals are precooked before being loaded on the plane. Now it is possible to do some cooking on board.

With microwave ovens the stewardesses not only save time in the galley but they can also offer passengers a more varied menu by thawing and heating frozen dinners on demand. And if no one requests rainbow trout it simply never gets unfrozen—or wasted.

Institutional kitchens also will undoubtedly be big users of microwave ovens. Some hospitals already use them.

Food processors, too, are finding that microwave ovens can serve a variety of purposes. Some processors are quickly precooking red meat or chicken parts to supply fastfood restaurants.

These precooked items are then chilled or frozen for facility in storage and shipping. When a fast food server wants to use them he merely reheats before serving. The reheating may be

done in another microwave oven, or in a conventional one. The customer thus gets faster service and is assured of properly cooked meat.

Potato chip manufacturers have probably made the most extensive use of the microwave cooking method up to now.

By using microwave ovens they have been able to eliminate the problem of dark color chips. Now, light color chips are possible since microwave cooking does not carmelize the sugar in the potatoes.

Food processors who supply flour mixes use the ovens to dry the various ingredients of bakery goods.

Microwave ovens are also excellent for quick thawing. A frozen egg, for example, takes only seconds to be completely thawed. This means little to the average housewife, but many food processors buy their eggs in frozen form, so thawing can be an important operation.

Quick thawing has many potential applications in the vending machine business. Completely automated thawing and heating of sandwiches, cakes, and pies has proven feasible.

In Sweden, hot dog vending machines equipped with microwave ovens are already serving the public. They thaw, heat, and deliver a packaged frankfurter in about 13 seconds after you deposit your coin.

The military also looks to microwave ovens to improve its food service. One example is the experimental SPEED kitchen (Subsistence Preparation by Electronic Energy Diffusion). These portable kitchens contain microwave ovens along with conventional stoves.

The self-contained microwave units, easy to transport by truck, boat, or helicopter, are designed to cook enough food in an hour to serve 200 men.

The touch of the microwave will probably be felt by many food products and may open up markets for new commodities as well—both food and related nonfood items.

Bacon—precooked in microwave ovens and packaged in pouches that can be popped into the toaster—is already on the market. The idea is to eliminate the old breakfast time hazard of spattering grease.

Microwave ovens will not only change cooking time and alter the foods we eat, they will also affect our cooking vessels. Microwaves can't penetrate metal. Thus, when food is put in the microwave oven, nonmetal pans must be used.

This may create demand for a whole new line of plastic and paper cooking dishes and pans. Or we might expect some of the new cooking vessels to be combination materials. A metal bottom loaf pan with plastic sides and top would protect the food on the bottom and allow all the cooking to be done on the other areas of the food surface.

Microwave ovens are not without problems. They are potentially dangerous, for example, if opened while the high heat is still on.

However, all microwave ovens have interlocks that shut off the current should the oven be opened by accident. To date, no injuries have been reported.

Also, though the ovens have gotten less expensive in the last few years, they are still far more costly than conventional units.

One Japanese company has a home unit that retails for as little as $300, but in the United States the average price is close to $500. Large units used by processing firms cost a good deal more.

Another problem is the taste and appearance of microwave-cooked foods. Although bread can be baked in less than 10 minutes, and a hamburger in 60 seconds, the bread doesn't have a nice brown crust. The hamburger isn't crispy on its top and bottom.

These problems are solvable, however. By baking the bread or searing the hamburger over conventional heat for a few minutes much of the usual taste and texture remain.

Use of these ovens is expected to increase in the seventies. As they become more common, they will bring further changes in our eating patterns. *(11)*

New Light Shed on Price Spreads Revises Picture for Beef and Pork

Calculation of price spreads is still the best available way of finding out the distribution of the value of a product to different stages in the production and marketing process.

Spreads for pork and beef have been calculated since the early 1920's. Since that time more accurate methods of making the calculations have reduced the margin of error.

A new ERS study that provides revised spreads for pork and beef from 1949 to 1967, gives a more accurate picture than some earlier ones.

Some of the changes that have been incorporated into the calculations are:

—The figures now reflect averages for an entire month rather than for a short period near the beginning of the month.

—Prices for more than 11 cuts of beef and pork are used, instead of a fairly small number of "best sellers".

—Allowance is made for "special" and for "retail shrinkage" (the reduction in pounds sold that occurs at the retail level due to spoilage, refacing, pilferage, and the additional tare added to packages to allow for dehydration).

—The effects of price "specials" on average prices paid for beef and pork are more fully accounted for.

—Improvements in hog quality over the years are taken into con-

sideration with other factors.

Using the revised procedure of figuring them, retail beef prices averaged 1 to 1½ cents lower. Beef carcass values came out to be about the same. Net farm value averaged 3½ to 4 cents higher. Under the new method all three spreads between farm gate and consumer checkout counter narrowed.

Farm-retail spreads for both beef and pork are of comparable size. But farm-wholesale and wholesale-retail spreads for the two products are quite different because of the greater number of services provided by pork packers and wholesalers.

The wholesale value of beef, for example, usually represents the value of beef carcasses.

On the other hand, pork products at the wholesale level have usually been cut, and sometimes smoked or cured.

For beef, the farm-retail spread between 1949 and 1961 increased steadily. But it has been relatively stable since 1961, even though it was 60 percent larger in 1968 than in 1949—an increase of 11.2 cents a pound. This increase was primarily due to a 106-percent jump in the carcass-retail portion of the spread—mainly because of rising labor costs.

The farm-carcass portion of the beef spread has actually been narrowing since 1956. Between 1949 and 1968 it decreased from 39 percent of the total farm-retail spread to 21 percent. Technological advances have more than offset rises in labor and equipment costs.

For pork, the farm-retail spread increased 67 percent from 1949 to 1968 and has been going up steadily since 1949 (except for a slight drop in 1953 and 1965 and a jump in 1959).

The farm-wholesale and the wholesale-retail spreads have both contributed to this increase —particularly the wholesale-retail spread. From 1959 to 1968, 71 percent of the 13.2-cent increase in the farm-retail spread resulted from increases in the wholesale-retail spread, and 29 percent from the farm-wholesale spread.

In 1968, the farm-wholesale spread accounted for 52 percent of the total farm-retail spread, compared with 68 percent in 1949. The annual average farm-wholesale spread in 1968 was 28-percent more than the annual average in 1949.

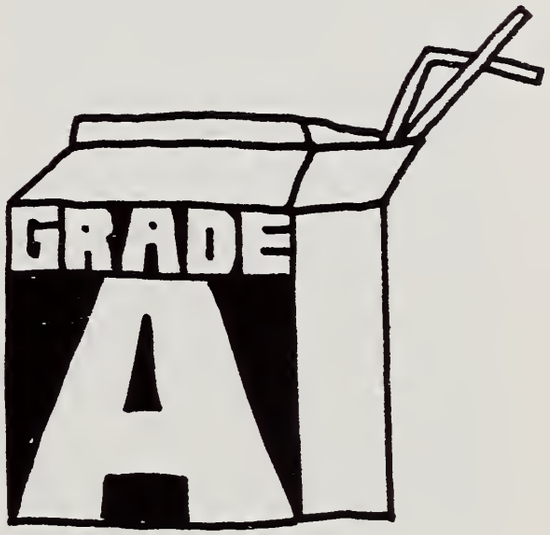
This rise, and the lesser annual increases for the years in between, are attributed to increases in services performed by slaughtering firms, higher costs of labor, equipment and other materials, and transportation. Improvements in technology and operating and marketing efficiency have only partially offset these costs.

Wholesale-retail spreads for pork in the 1949-68 period fluctuated considerably and went up even more than farm-wholesale spreads. Shortrun fluctuations are partly the result of retailers' reluctance to change prices until clearcut trends are observed. Between 1949 and 1968 the wholesale-retail spread went up by 149 percent.

The farmer's share for both beef and pork has decreased over the years, and it is far less stable than the marketing bill portion of the retail price. His share of the beef consumer's dollar slipped from 72 percent in 1949 to 65 percent in 1968 as the cost of services went up.

The beef producer's share at the farm level was highest in 1951, with a value of 77 percent. His share was at its lowest in 1964 at 60 percent.

The producer's share of the consumer dollar spent for pork dropped from 64 percent in 1949 to 51 percent in 1968. His share was lowest in 1959 at 46 percent, and highest in 1953 at 67 percent. (Estimates for 1969, however, indicate that the hog farmer's share last year rose to 57 percent). *(12)*



Milk Flow Between Markets At Times Jammed by Rule Crisscross

State and local health agencies don't always agree on sanitary regulations for the dairy industry.

Not only do requirements differ from place to place, but they often overlap and occasionally conflict.

This crisscross of rules was o.k. a while back when milk produced in a particular area was also consumed there.

But now that there are fewer and larger plants with wider distribution areas, the various sanitary codes and ordinances can hinder and sometimes bar the free movement of milk from one market to another.

In 1924, the U.S. Public Health Service developed sanitation reg-

ulations for State and municipal authorities to use as a model. This model has been revised 13 times since then. Many municipal and county health departments now have regulations based wholly or in part on the 1953 or 1965 revisions of the model regulations.

There is, however, still some overlapping of regulations. This adds to the expenses of fluid milk plants and milk producers.

The Economic Research Service conducted a study of sanitary regulations in the fluid milk industry to pinpoint the cost of licenses and permit fees, and to determine the extent of duplication.

Fluid milk plants in the United States paid regulatory sanitation authorities an estimated $2,915,553 in plant fees in 1967—$3,259,001 to primary authorities (those having primary jurisdictional authority, whether city, county, or State), and $466,986 to other authorities. Additional expenses associated with plant inspection by these authorities totaled $513,188.

The 1,249 fluid milk plants included in the survey paid an average to regulatory sanitation authorities in 1967. Fees paid to primary authorities averaged $1,134, compared with only $174 paid to other authorities. Fewer primary authorities charged fees, but when they did they were much higher.

Total fees paid per plant varied considerably. About 25.8 percent paid no fees, and 57.5 percent paid less than $1,000. An additional 10.3 percent paid from $1,000 to $4,999; the remaining 6.4 percent paid fees ranging from $5,000 to slightly over $85,000.

Costs to the plants associated with plant inspections averaged $183 in 1967. About $122 of this cost was for inspections by primary authorities, and $61 for inspections by other authorities.

The 1,249 plants were regulated by an average of 4.8 different sanitation authorities, although the number varied greatly from region to region. New England had the highest number of authorities, (8.1), and plants in the Western Region the fewest (2.4).

New England plants paid fees to sanitation authorities in the many small towns where they distributed milk, and it is doubtful that all these health authorities actually tested the quality of the milk.

During 1967, the plants were inspected an average of 23.9 times each, although frequency of inspection varied widely among plants. About 35.6 percent of the plants were inspected no more than once a month.

Regionally, the plants in the South Central and South Atlantic Regions were inspected most often—more than two and a half times as often as plants in the Mid-Atlantic Region.

Only 8 percent of the plants reported conflicting or significantly different sanitary requirements by sanitation authorities. And differences in requirements for processed or raw milk accounted for most of these. Others mentioned differences in requirements for plant layout, construction, and equipment.

Some of the other comments related to duplication of plant inspection, particularly in the Mid-Atlantic and South Central Regions—and to lack of uniformity in requirements and differences in interpretation of requirements. Some, however, said they were satisfied with current regulations.

During the 5-year period from 1963-67, about 13.5 percent of the plants entered an average of 2.9 new markets. Most of them—2.3 percent—were intrastate; 0.6 were interstate. Entry into new intrastate markets was much easier than entry into interstate markets, although the methods used were similar.

The most common way of entering markets within the same State was by buying a new business. About 29 percent of the new markets were entered this way. Other methods frequently used were the extension of wholesale and retail routes.

Only 7.5 percent of the plants reported encountering sanitation barriers in the new markets entered between 1963 and 1967.

The ERS also surveyed the dairy cooperatives that supplied milk to the fluid milk plants in the study. About 44 percent of the 69,393 farmer-members of these cooperatives paid an average fee of $14.46 to sanitation authorities regulating their farms in 1967.

Farms of co-op members were inspected an average of 3.3 times by sanitation authorities during the year. Most of these inspections were made by primary authorities.

One fifth of the cooperatives cited instances where differences in farm sanitation requirements acted as a barrier to milk sales—mostly when trying to sell milk to interstate markets.

The two most common barriers were differences in requirements for barn construction and equipment, and refusal to accept or recognize certification under the interstate shippers' program. *(13)*

Sniff and Chew

The ring of the spittoon, familiar sound in the poolhall and saloon of yesteryear, may re-echo.

U. S. output of chewing tobacco spurted to nearly 70 million pounds in 1969—7 percent above 1968. Sales, too, were up 7 percent.

The two main categories are scrap and plug. Output of these rose 11 and 2 percent, respectively. A slip in twist about offset a slight gain in fine cut.

Snuff output—after a steady 12-year dip—rose 2 percent last year. But the 500,000-pound increase was nothing to sneeze about, as sales continued downward, about 2½ percent. *(14)*

How Does Your Garden Grow?

Southern gardeners are not losing their interest in keeping things green, judging from nursery sales of ornamental trees, shrubs, and other green thumb paraphernalia.

For every $100 that southern gardeners spent in 1962 on ornamental shrubs and trees, plants, and related items, they spent $167 just 5 years later.

And in the next 5 years, by 1972, the figure is expected to be $211—a rise of 111 percent during the 1962–72 decade.

This trend in spending is one aspect of the South's gardening story as told in interviews with 314 well established retail nurserymen in eight southern States (Alabama, Florida, Georgia, Kentucky, Mississippi, South Carolina, Texas, and Virginia).

Chief stock in trade of the nurserymen is "woody ornamentals" (shrubs or trees ranging from hawthorns and hollies to pines and pyracanthas), though they also deal in foliage plants, bulbs, and the wherewithal to plant and grow them. Their retail sales totaled $11 million in 1967—up 67 percent from 1962.

Despite the limited scope of the survey, findings are probably applicable to consumers' buying habits elsewhere—allowing for some regional and seasonal variations.

Wherever he is, a person who has $100 to spend on beautifying his yard, or balcony, or place of business usually heads for one of these places:

—A sales yard that is mainly interested in retailing nursery stock direct to the customer, who often takes his purchase with him.

—A landscape nursery that offers planning and planting services as well as plant materials.

—A garden center that not only sells nursery stock but is also set up like a general store to handle all kinds of lawn and home garden supplies.

How does our southern gardener spend his $100?

Judging by average sales for various items at all the nurseries surveyed, he spends about $52 on the woody ornamental trees and shrubs. (About $23 of this is for landscape plants and includes charges for labor and other services.) The balance of about $48 he spends on nonplant things.

Specifically, here's where his $100 probably goes:

Woody ornamentals	$40.00
Plants:	
Bedding and vegetable	4.00
Foliage and potted	2.50
Other	3.00
Seeds and bulbs	2.50
Fertilizers and soil conditioners	12.50
Pesticides	9.50
Tools and hardware	3.00
Other nonplant items	23.00

Re packaging: Metal can containers are favored for broadleaf evergreens and deciduous shrubs; ball and burlap predominate for narrow leaf evergreens and ornamental trees. *(15)*

Fats and Oils Use Climbs Close To 52 Pounds Per Person in '69

Weight-watching is not America's most popular pasttime, judging by last year's fats and oils statistics.

U.S. civilians used a record 10.4 billion pounds of fats and oils as food in calendar 1969. Including only the fat content of butter and margarine, this large national helping amounted to 51.8 pounds of fats and oils per person—nearly 1 pound more than the annual serving in 1968.

Use of baking and frying fats in food products rose from 16.2 pounds to 17.0 pounds per person; salad and cooking oils, from 13.5 to 14.3 pounds. These increases more than offset decreases in butter and lard. *(16)*

RICE LEADS RACE AMONG CARBOHYDRATES. The average U.S. consumer ate a record 8 pounds of rice in 1969. This is a small serving, compared with the amount of potatoes, or wheat and flour, that he put away in one form or another. But it is a hefty one-third above his 1960 rice helping, and 60 percent more than he ate in 1950.

More significant—while people are serving less of most carbohydrate foods, rice use on a per person basis is going up—and increasing patronage of Chinese restaurants and interest in Far Eastern cooking is not the sole reason.

Retail prices of rice have risen an average of less than 1 percent annually—less than the price increases for most competing foods. But price is only one of a number of factors, including new products and effective promoting, which have contributed to greater use of rice.

Here's how average retail rice prices compare with those of competing products over the years: *(17)*

Year	White potatoes	Rice: Long grain	Rice: Short grain	Flour, wheat	Dry beans
			Cents per pound		
1950	4.6	16.8	—	49.1	15.3
1952	7.6	18.0	—	52.3	16.1
1954	5.3	19.6	—	53.6	17.6
1956	6.8	—	17.2	53.3	16.3
1958	6.3	—	18.4	55.2	18.0
1960	7.2	20.5	18.6	55.4	16.7
1962	6.3	21.4	19.1	57.0	17.4
1964	7.6	21.7	18.8	56.7	16.7
1966	7.5	21.8	19.0	59.4	19.8
1968 [1]	7.6	22.3	18.8	58.4	19.6
1969 [1]	8.2	22.6	18.8	58.1	19.6

Yearly per person use of rice has risen steadily:

Year	Potatoes [2]	Rice [3]	Flour, wheat [4]	Cornmeal, hominy, and grits [5]	Dry beans [6]
			Pounds		
1950	96.7	5.1	135	14.4	8.6
1952	91.5	5.3	131	12.9	8.1
1954	96.7	5.3	126	11.7	8.0
1956	92.1	5.8	121	11.0	8.0
1958	91.8	5.4	121	10.9	7.7
1960	91.8	6.1	118	10.6	7.3
1962	89.3	7.4	115	10.6	7.6
1964	90.5	7.0	114	10.5	7.6
1966	86.4	7.3	111	10.3	6.3
1968	85.0	7.8	112	10.2	6.3
1969 [1]	85.0	8.3	112	10.2	6.6

[1] Preliminary. [2] Farm weight basis, calendar year; excludes chips and shoestring potatoes. [3] Milled basis, excludes brewers rice, year ending July. [4] Calendar year. [5] Based on Census data, calendar year. [6] Cleaned basis, calendar year.

The Pace of Agriculture in Developing Nations

Though farm output in developing countries has risen faster than population, far greater agricultural gains are needed to achieve significant economical advancements.

Agricultural output is keeping a pace ahead of population growth in most of the world's developing countries.

This lead, however, must be widened considerably if farmers' incomes are to rise . . . and if agriculture is to make a real contribution to overall economic progress in the developing nations.

During the 1950's and 1960's, farm production surpassed population growth in all but 13 of 54 countries whose performance was reviewed by the Economic Research Service in cooperation with the Agency for International Development.

Seventeen countries boosted farm production by 4 percent a year or more. As a group, the developing nations increased their output as fast as the developed nations—2.8 percent.

In the developing countries, however, an unprecedented population growth of 2.5 percent a year absorobed much of the gain in farm output. Production on a per capita basis climbed only 0.3 percent, compared to 1.6 percent in the developing countries.

It was not only population increase that spurred the demand for agricultural products.

As per capita incomes rise—they are gradually doing so in most developing countries—people spend a large share of their additional income for more and better food.

Thus, in many countries where agriculture kept ahead of population growth in the 1950's and 1960's, production was still inadequate to satisfy the needs of greater numbers of people with rising incomes.

And even where productivity per farmworker went up substantially, in most instances the gain was not enough to improve rural incomes and at the same time permit large net transfers of capital from agriculture to other sectors of the economy.

By how much will farm production have to expand in the 1970's?

It will have to increase about 4 percent a year to meet bigger needs resulting from population growth of 2.5 percent a year, and to raise per capita consumption levels and upgrade diets.

Crop area is expected to increase only about 1 percent a year. That means crop output per acre would have to increase 3 percent to attain the 4-percent gain in total production, or about twice the rate of the 1950's and '60s. (This is for developing countries as a group; the exact figures would vary by country.)

In addition, developing countries will need to find ways to raise output per farmworker at a time when farm population is increasing and arable land per worker is decreasing.

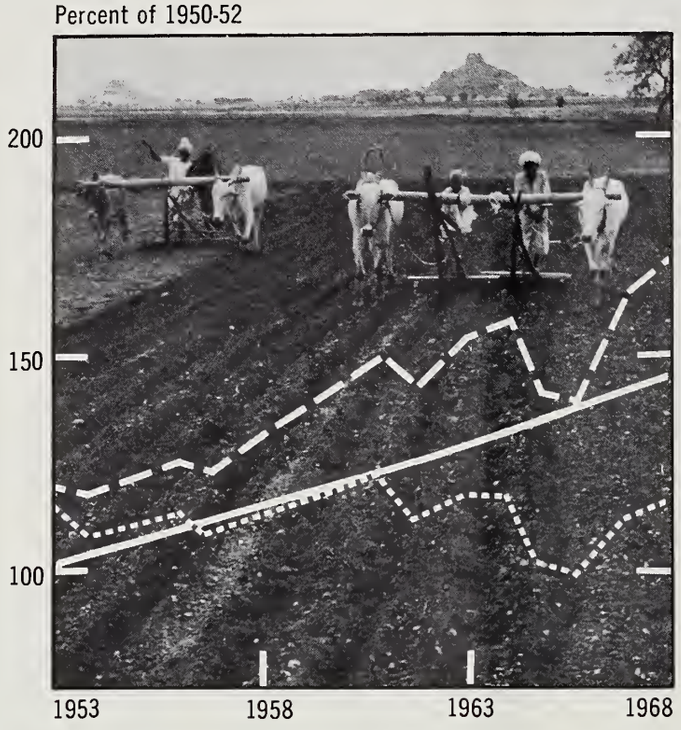
Notwithstanding the migration of people from farms to cities, farm population will probably grow at least 1.7 percent a year. If total agricultural output is to advance by 4 percent, output per farmworker would have to rise 2.3 percent (4 percent less 1.7)—much more rapidly than in most low-income countries during the past 2 decades.

As great as this increase might seem, it would provide only modest gains in real per capita incomes for farm people. At present, farmers' incomes average 25 to 50 percent of nonfarmers' incomes.

The answer to "can it be done?" may ultimately depend on the efforts and abilities of developing countries to expand markets for their farm products; to develop land and water resources; to buy more inputs produced by the nonfarm sector; and to make further technological advances.

On the following pages are summaries of intensive studies of seven developing countries—their agricultural progress since 1950 and the ways they achieved it:

India



The world's second most populous country has doubled its production of food grains over the past 15 or 20 years.

India's crop output, overall, rose 3.2 percent a year between 1947 and 1964, or 0.7 more than population. Production fell sharply in the mid-1960's, due to adverse weather, but it rebounded to a record high in 1969.

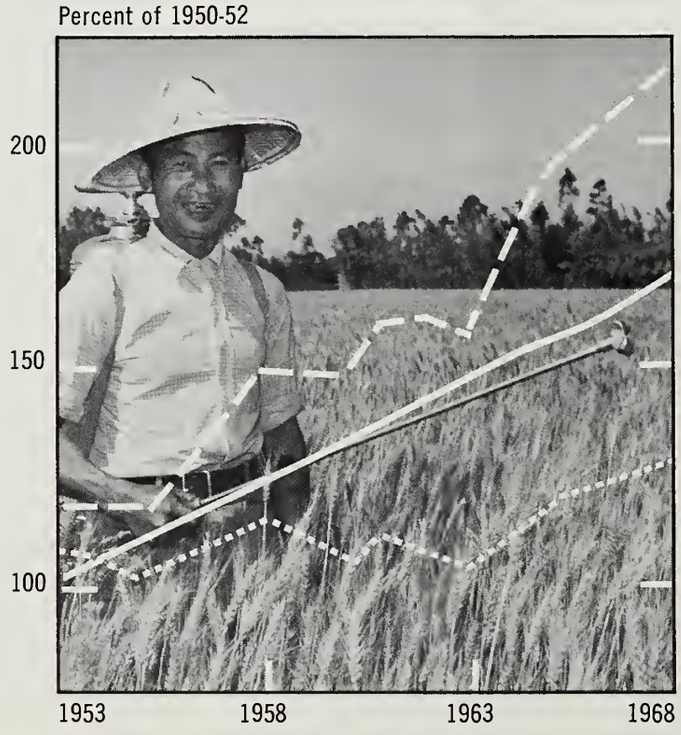
Contributing to the bigger harvests were better yields—notably of rice and wheat—from improved varieties, as well as new lands brought into production.

But India has yet to overcome its age-old problems of famine and hunger.

The recent big harvests were in areas where conditions were unusually favorable. To extend the use of high-yielding varieties to all areas of the country would call for vast investments in irrigation and other forms of water management; in rural electric power; and agricultural research, education, extension, and credit.

India's population, now around 540 million, may exceed 1 billion before the year 2000. Without substantial increases in both output per farm worker and per acre yields, it will be difficult—if not impossible—to expand food supplies per capita.

Taiwan



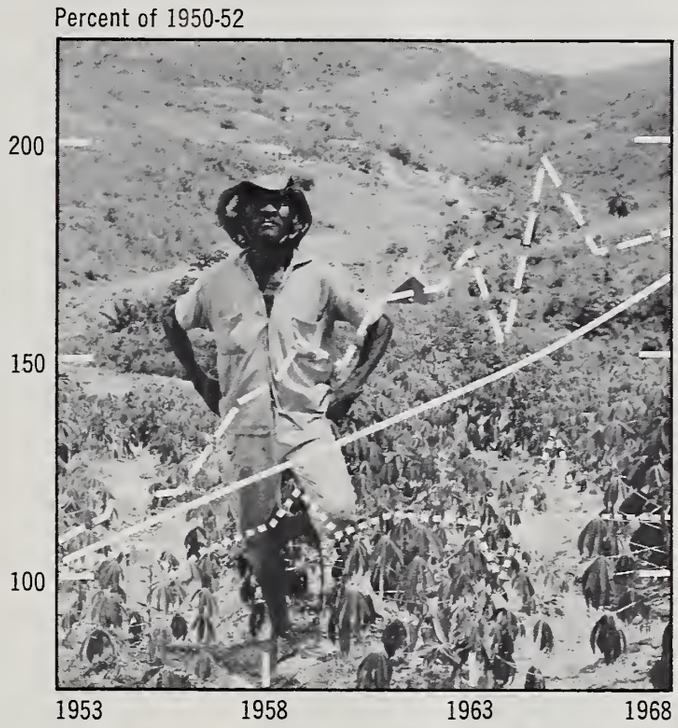
Taiwan made remarkable strides in agriculture during 1950-68, despite limited land resources. Nearly all of its 4.5-percent increase in output was achieved through more intensive farming of irrigated land.

Crop output per hectare doubled (1 hectare equals roughly 2.5 acres). Livestock and poultry industries—based on imported feeds—also expanded rapidly.

Population growth was 3.3 percent annually up to 1965, but has since declined to around 2.5 percent. Assuming population increase stays at a relatively low level, farm output would still have to rise about 4 percent a year to meet a growing demand for food.

Population
Total agricultural production
Agriculture production per capita

Brazil



The experience of Brazil shows how agricultural production tends to increase in the normal course of events, given sufficient endowments of labor and land resources.

This country has been able to feed its growing population at relatively stable prices while increasing its agricultural exports.

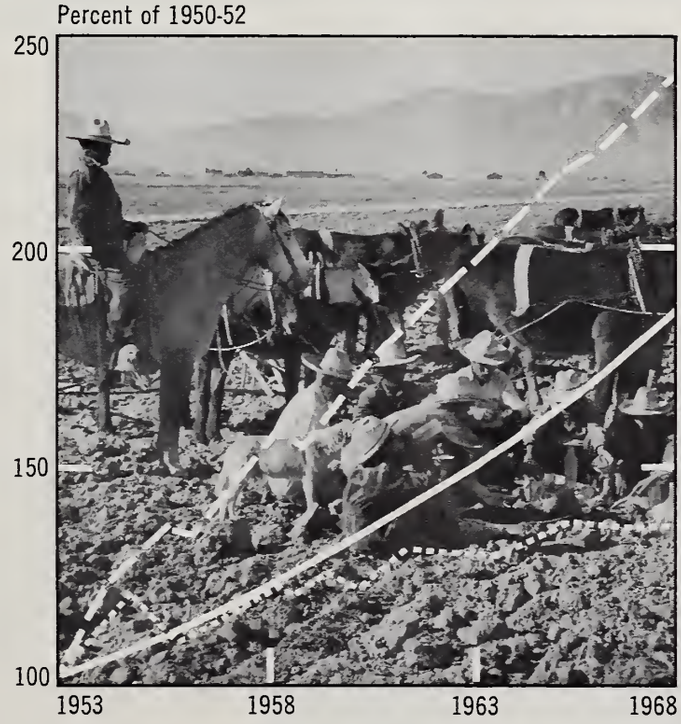
During the 1950's and 1960's, agricultural output climbed about 4 percent a year and population 3 percent. Most of the higher production came through expansion of cultivated land in frontier areas and increases in livestock numbers.

Gains in output per worker and per land unit, however, were small. Despite steps to improve the technological base and to disseminate information about improved varieties, technological progress was relatively slow and inadequate compared to the size of the task.

Brazil has a large agricultural potential. The use of new production techniques could substantially raise the low level of productivity.

Or, the country could develop virgin lands in the interior. This would require heavy investment in roads, marketing facilities, and public services—at about the same costs that would be involved in upgrading farming practices on existing cropland.

Mexico



Agricultural production in Mexico increased at rates well above those of most other Latin countries between 1950 and 1968. Diets of the people improved. Exports of agricultural products rose.

Growth in farm output was 5.1 percent annually, 2 percent more than population growth. Half the crop increase came from cultivation of new lands, the balance from better yields.

Also instrumental: stepped-up use of fertilizers and improved plant varieties, higher investment in livestock, and rising levels of farm employment.

Two major agricultural programs were instituted by the Mexican government.

One involves large-scale irrigation projects affecting over 2 million hectares. These irrigated districts, comprising less than 15 percent of the country's harvested cropland, produce about one-third of the total gross income derived from crops.

The other program is land reform, principally the parceling of large farms.

Although Mexico has met many of its development goals, it could devote more resources to agricultural research, to the problem of high illiteracy in rural areas, and to assistance for farmers whose holdings are outside irrigation projects.

Nigeria

In Nigeria, output of farm products for domestic use went up at about the same rate as population, between 2 and 3 percent a year.

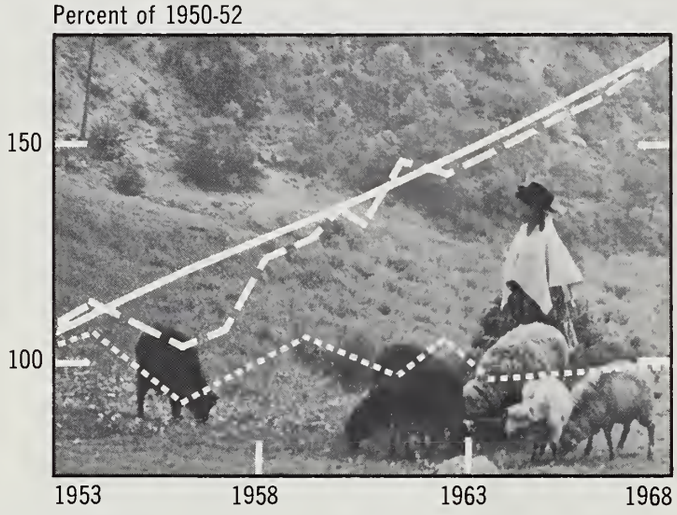
Lagging application of technology inhibited greater agricultural gains.

Even so, Nigeria can remain self-sufficient in food staples by cultivating new lands. Quality of diets, on the other hand, needs to be improved.

Exports of farm products are the major source of cash income for Nigeria's peasant farmers, and have the most potential for increasing rural incomes and creating job opportunities.

(N.B. The graph, at left, is based on crude estimates. It does not appear in the published study.)

Colombia



Colombia showed a favorable growth rate in agriculture, but little change in production per capita.

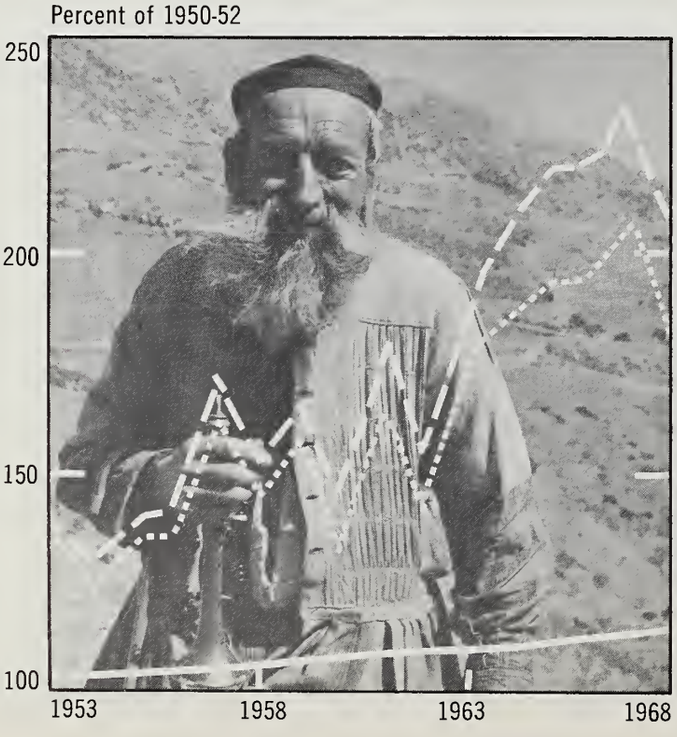
Total farm output advanced at an annual average of 3.3 percent during 1950-67; population rose 2.5 to 3.3 percent.

After 1956, low coffee prices reduced foreign exchange earnings, and this in turn slowed the general economy. The situation improved in the late 1960's with the institution of government reforms.

Most of the increase in crop output stemmed from mechanization of larger farms in fertile river valleys, and wider use of pesticides, fertilizers, and better seeds.

For various reasons, small farmers were unable to benefit from available technology as much as large operators.

Greece



Greece's agricultural output rose 4.9 percent a year between 1947 and 1967, while population increased by only 0.8 percent.

Improved yields, which accounted for three-fourths of the gain in farm production, were attributed to crop research, increased irrigation, and wider use of fertilizer and other purchased inputs.

The proportion of capital in agriculture doubled in relation to land and labor inputs, due in large part to a variety of programs sponsored by the expanded Agricultural Bank.

Yet, productivity of farmworkers remained low because of scarce land resources and a large farm population with limited possibilities for other means of employment. *(18)*

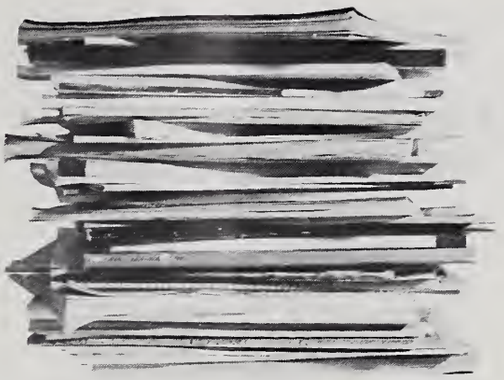
Population
Total agricultural production
Agriculture production per capita

CROPLAND TRENDS SINCE WORLD WAR II: REGIONAL CHANGES IN ACREAGE AND USE. Orville E. Krause, Natural Resource Economics Division. AER–177.

There is evidence that new cropland has been developed in recent years throughout the country. Yet cropland abandonment appears to have been greater than revealed by the gradual downtrend in the Nation's total cropland acreage or by changes in State totals. (See May 1970 Farm Index.)

THE AGRICULTURAL SITUATION IN WESTERN EUROPE: REVIEW OF 1968 AND OUTLOOK FOR 1970. Foreign Regional Analysis Division. ERS–For. 291.

The agricultural output in Western Europe remained at a high level in 1969. Wheat and milk surpluses continued to mount. Although agricultural imports tend to stabilize, exports are on the increase. Negotiations aimed at expanding EC membership are expected in 1970.



RECENT PUBLICATIONS

The publications listed here are issued by the Economic Research Service and cooperatively by the State universities and colleges. Unless otherwise noted, reports listed here and under Sources *are published by ERS. Single copies are available free from The Farm Index, OMS, U.S. Department of Agriculture, Washington, D.C. 20250. State publications (descriptions below include name of experiment station or university after title) may be obtained only by writing to the issuing agencies of the respective States.*

ECONOMIC CONSEQUENCES OF RESTRICTING THE USE OF ORGANOCHLORINE INSECTICIDES ON COTTON, CORN, PEANUTS AND TOBACCO. Velmar W. Davis, Austin S. Fox, Robert P. Jenkins, and Paul A. Andrilenas, Farm Production Economics Division. AER–178.

Data on farm use of insecticides for 1966, the most recent available, are the basis for this analysis. Though farmers are the primary focus, the study recognizes that restrictions on insecticide use also are of concern to the pesticide industry, consumers, and the total environment. (See page 3, this issue.)

RURAL POVERTY IN THREE SOUTHERN REGIONS: MISSISSIPPI DELTA — OZARKS — SOUTHEAST COASTAL PLAIN. John L. McCoy, Economic Development Division. AER–176.

Rural poverty, a problem of human resource development, varies in intent and severity from one region to another. The focus

ARTICLE SOURCES

State publications indicated by (*) may be obtained only from the experiment station or university cited. Manuscripts and special material are usually available only on request to authors.

PHOTO CREDIT: Page 19, Brazilian photo, Food and Agriculture Organization of the United Nations.

1. Velmar W. Davis and others, *Consequences of Restricting the Use of Organochlorine Insecticides on Cotton, Corn, Peanuts, and Tobacco,* AER-178; also Davis, FPED. Some Facts and Opinions on Farm Pollution (special material).
2. Donald Durost, FPED. "Crop Production per Acre and Corn Yield Trends" (presented at 1970 Agricultural Outlook Conference).
3. Warren R. Bailey and Lawrence A. Jones, FPED. *Economic Considerations in Crop Insurance.*
4. William E. Cathcart, ESAD. "Changes in the Poultry Meat Industry and Projections for the Decade of 1970," *Poultry and Egg Situation,* April 1970, PES-261.
5. Troy Mullins, FPED, Fayetteville, Ark. Capital Requirements for Initiating a Catfish Production Enterprise (special material).
6. N. William Hines, University of Iowa, Settlement of Large Farm Estates in Iowa (special material).*
7. Albert A. Klingebiel, Soil Conservation Service, and Erling D. Solberg, NRED. Soil Classification for Farm and Nonfarm Uses (manuscript).
8. Calvin L. Beale, EDD. (Special material.)
9. Burl F. Long, NRED, and J. Dean Jansma, Pennsylvania State University. "Costs for Clean Water May Affect Economy of Industrial Communities," *Science and Agriculture,* Vol. XVII, No. 3, Spring 1970, Pa. Agri. Exp. Sta.*
10. Robert C. McElroy, EDD. *The Hired Farm Working Force of 1969—A Statistical Report,* AER-180.
11. Kermit M. Bird, MED. New Food Processes (special material).
12. Lawrence A. Duewer, MED. Price Spreads for Beef and Pork, Revised Series, 1949-1969 (manuscript).
13. W. Webster Jones, MED. Sanitary Regulation of the Fluid Milk Industry: Inspection, Cost, and Barriers to Market Expansion (manuscript).
14. *Tobacco Situation,* March 1970, TS-131.
15. Jules V. Powell and Stephen M. Raleigh, MED, and eight cooperating southern agricultural experiment stations. *Marketing Woody Ornamentals: Practices and Trends of Retail Outlets in the South,* So. Cooperative Series Bull. 153.
16. *Fats and Oils Situation,* FOS-252.
17. *Rice Situation,* March 1970, RS-15.
18. R. P. Christensen and others, FDTD. *Economic Progress of Agriculture in Developing Nations, 1950-68,* FAER 59.
19. Charles W. Porter, ESAD. (Special material.)

NOTE: Unless otherwise indicated, authors are on the staff of the Economic Research Service (ERS) with their divisions designated as follows: Economic and Statistical Analysis Division (ESAD); Economic Development Division (EDD); Farm Production Economics Division (FPED); Foreign Development and Trade Division (FDTD); Foreign Regional Analysis Division (FRAD); Marketing Economics Division (MED); and Natural Resource Economics Division (NRED).

in this report is almost exclusively on poverty and its relationships to certain individual characteristics as distributed in the three regions of investigation. (See February 1970 Farm Index.)

THE AGRICULTURAL SITUATION IN THE WESTERN HEMISPHERE: REVIEW OF 1969 AND OUTLOOK FOR 1970. Foreign Regional Analysis Division. ERS–For. 294.

Canadian agricultural production continued a recovery in 1969, but 1970 wheat output is expected to be cut back sharply because of stock buildups. Large world supplies continued to restrict Hemisphere wheat exports. Latin American exports were up. U.S. agricultural exports to the region were below the 1968 levels but are expected to recover in 1970.

THE AGRICULTURAL SITUATION IN COMMUNIST AREAS. Foreign Regional Analysis Division. ERS–For. 292.

This comprehensive review of agricultural situation in Communist areas during 1969 and the outlook for 1970 is one of five regional supplements to *The World Agricultural Situation: Review of 1969 Outlook for 1970,* FAER 57.

RURAL INDUSTRIALIZATION IN THE SOUTHEAST COASTAL PLAIN: CASE STUDY OF A NEW BRICK FACTORY IN SUMMERVILLE, S.C. Jackson V. McElveen, Economic Development Division. AER-174.

When a modern brick plant comes to a small South Carolina community it laid a new foundation for the economy of a rural area in the South. The study examines the impact on the local community of the first five years of the plant's life. Before the factory was built, jobs for the unskilled were sparse. When the plant opened the picture changed. (See February 1970 Farm Index).

Addresses of State experiment stations: This ready reference list for readers wishing to order publications and source material published through State experiment stations will be updated again in December.

STATE	CITY	ZIP CODE
ALABAMA	Auburn	36830
ALASKA	College	99701
ARIZONA	Tucson	85721
ARKANSAS	Fayetteville	72701
CALIFORNIA	Berkeley	94720
	(101 Giannini Hall)	
	(145 Mulford Hall)	
	Davis	95616
	(217 Mrak Hall)	
	(1018 Haring Hall)	
	Los Angeles	90024
	Parlier	93648
	Riverside	92502
	(Citrus Research Center)	
COLORADO	Fort Collins	80521
CONNECTICUT	New Haven	06504
	(P. O. Box 1106)	
	Storrs	06268
DELAWARE	Newark	19711
FLORIDA	Gainesville	32601
GEORGIA	Athens	30601
	Experiment	30212
	Tifton	31794
HAWAII	Honolulu	96822
IDAHO	Moscow	83843
ILLINOIS	Urbana	61801
INDIANA	Lafayette	47907
IOWA	Ames	50010
KANSAS	Manhattan	66502
KENTUCKY	Lexington	40506
LOUISIANA	Baton Rouge	70803
	(Drawer E	
	University Station)	
MAINE	Orono	04473
MARYLAND	College Park	20742
MASSACHUSETTS	Amherst	01002
MICHIGAN	East Lansing	48823
MINNESOTA	St. Paul	55101
	(St. Paul Campus)	
MISSISSIPPI	State College	39762
MISSOURI	Columbia	65201
MONTANA	Bozeman	59715
NEBRASKA	Lincoln	68503
NEVADA	Reno	89507
NEW HAMPSHIRE	Durham	03824
NEW JERSEY	New Brunswick	08903
NEW MEXICO	Las Cruces	88001
	NM State University	
	(P. O. Box 3-AG)	
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	(Cornell Station)	
	Geneva	14456
	(State Station)	
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	(Box 5847)	
NORTH DAKOTA	Fargo	58102
	(State University Station)	
OHIO	Columbus	43210
	(Ohio State University)	
	Wooster	44691
OKLAHOMA	Stillwater	74074
OREGON	Corvallis	97331
PENNSYLVANIA	University Park	16802
	(106 Armsby Building)	
PUERTO RICO	Rio Piedras	00928
RHODE ISLAND	Kingston	02881
SOUTH CAROLINA	Clemson	29631
SOUTH DAKOTA	Brookings	57006
TENNESSEE	Knoxville	37916
TEXAS	College Station	77843
UTAH	Logan	84321
VERMONT	Burlington	05401
VIRGINIA	Blacksburg	24061
WASHINGTON	Pullman	99163
WEST VIRGINIA	Morgantown	26506
WISCONSIN	Madison	53706
WYOMING	Laramie	82070
	(University Station	
	Box 3354)	

ECONOMIC TRENDS

Item	Unit or Based Period	'57-'59 Average	1969 Year	1969 April	1970 February	1970 March	1970 April
Prices:							
Prices received by farmers	1910-14=100	242	277	271	290	289	281
Crops	1910-14=100	223	224	227	221	221	220
Livestock and products	1910-14=100	258	322	309	349	347	333
Prices paid, interest, taxes and wage rates	1910-14=100	293	373	373	386	385	388
Family living items	1910-14=100	286	351	349	362	362	364
Production items	1910-14=100	262	304	303	312	311	313
Parity ratio		83	74	73	75	75	72
Wholesale prices, all commodities	1957-59=100	—	113.0	111.9	116.4	116.6	116.5
Industrial commodities	1957-59=100	—	112.7	112.1	115.5	115.8	116.1
Farm products	1957-59=100	—	108.5	105.6	113.7	114.3	111.1
Processed foods and feeds	1957-59=100	—	119.8	117.3	125.2	124.9	124.7
Consumer price index, all items	1957-59=100	—	127.7	126.4	132.5	133.2	134.0
Food	1957-59=100	—	125.5	123.2	131.5	131.6	132.0
Farm Food Market Basket: [1]							
Retail cost	Dollars	983	1,173	1,150	1,227	1,224	—
Farm value	Dollars	388	477	465	508	507	—
Farm-retail spread	Dollars	595	696	685	719	517	—
Farmers' share of retail cost	Percent	39	41	40	41	41	—
Farm Income: [2]							
Volume of farm marketings	1957-59=100	—	127	94	98	99	96
Cash receipts from farm marketings	Million Dollars	32,247	47,431	3,135	3,337	3,444	3,300
Crops	Million Dollars	13,766	18,939	893	999	921	900
Livestock and products	Million Dollars	18,481	28,492	2,242	2,338	2,523	2,400
Realized gross income [3]	Billion Dollars	—	54.6	—	—	56.0	—
Farm production expenses [3]	Billion Dollars	—	38.6	—	—	39.7	—
Realized net income [3]	Billion Dollars	—	16.0	—	—	16.3	—
Agricultural Trade:							
Agricultural exports	Million Dollars	4,105	6,228	602	550.5	563.1	—
Agricultural imports	Million Dollars	3,977	5,024	488	448.8	513.3	—
Land Values:							
Average value per acre	1957-59=100	—	[5] 187	[5] 187	[6] 194	[6] 194	[6] 194
Total value of farm real estate	Billion Dollars	—	[5] 202.6	[5] 202.6	[6] 207.3	[6] 207.3	[6] 207.3
Gross Nationol Product: [3]	Billion Dollars	457.3	932.1	—	—	959.6	—
Consumption	Billion Dollars	294.2	576.0	—	—	600.4	—
Investment	Billion Dollars	68.0	139.4	—	—	135.0	—
Government expenditures	Billion Dollars	92.4	214.6	—	—	221.2	—
Net exports	Billion Dollars	2.7	2.1	—	—	3.0	—
Income and Spending: [4]							
Personal income, onnual rate	Billion Dollars	365.3	747.2	735.3	778.3	783.3	801.1
Total retail sales, monthly rate	Million Dollars	17,105	29,303	29,409	29,980	29,734	—
Retail sales of food groups, monthly rate	Million Dollars	4,160	6,322	6,211	6,655	6,714	—
Employment and Wages: [4]							
Total civilian employment	Millions	63.9	77.9	77.6	78.8	79.1	78.9
Agricultural	Millions	5.7	3.6	3.7	3.5	3.6	3.6
Rate of unemployment	Percent	5.5	3.5	3.5	4.2	4.4	4.8
Workweek in manufacturing	Hours	39.8	40.6	40.8	39.9	40.2	40.0
Hourly earnings in manufacturing, unadjusted	Dollars	2.12	3.19	3.15	3.29	3.31	3.32
Industrial Production: [4]	1957-59=100	—	173	172	171	171	170
Manufacturers' Shipments and Inventories: [4]							
Total shipments, monthly rate	Million Dollars	28,745	54,611	53,298	55,588	54,860	—
Total inventories, book value end of month	Million Dollars	51,549	95,905	91,018	96,603	96,682	—
Total new orders, monthly rate	Million Dollars	28,365	54,815	54,635	54,854	53,796	—

[1] Average annual quantities of farm food products purchased by urban wage-earner and clerical-worker households (including those of single workers living alone) in 1959-61—estimated monthly. [2] Annual and quarterly data are on 50-State basis. [3] Annual rates seasonally adjusted first quarter. [4] Seasonally adjusted. [5] As of March 1, 1969. [6] As of Nov. 1, 1969.

Sources: U.S. Dept. of Agriculture (Farm Income Situation, Marketing and Transportation Situation, Agricultural Prices, Foreign Agricultural Trade and Farm Real Estate Market Developments); U.S. Dept. of Commerce (Current Industrial Reports, Business News Reports, Advance Retail Sales Report and Survey of Current Business); and U.S. Dept. of Labor (The Labor Force and Wholesale Price Index).

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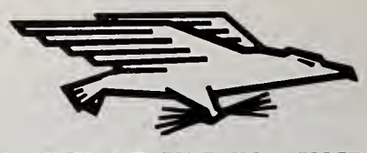

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Watermelon Time

Hot weather and cold watermelons. July has plenty of both. And in the U.S.A., it's *the* watermelon month.

True, the first truckloads and carloads of domestically produced watermelons start rolling into northern markets as early as May, and keep coming through September.

Yet over a third of the Nation's crop is usually marketed in July. The heat can't be beat for stimulating vine growth and also market demand. As the temperature climbs in the North, so do watermelon sales—and vice versa.

Averaging national consumption figures, every U. S. civilian eats a yearly slice of watermelon weighing close to 14 pounds, with or without seeds. That's equal to two or three of the fairly new midget melons, but only about half of an old-fashioned variety.

Florida dominates as a supplier in May and June. The big-volume harvest in July and August, however, is in Texas, Georgia, and South Carolina. These three States provided three-fifths of our mid-summer supplies last year. California, Alabama, Mississippi, and Oklahoma help out.

The price growers get for their melons is often in the range of 1½ to 2 cents a pound, though early season sales bring more. Retail prices usually range from 4 to 7 cents a pound.

The bulky, perishable nature of this summer favorite makes the cost of a 500- to 1,000-mile trip from southern melon patch to northern supermarket relatively high—adding to wholesaling and retailing costs as well. *(19)*

THE FARM INDEX

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